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09/647,544	10/26/2000	Evy Lundgren-Akerlund	003300-685	8350

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EXAMINER
HADDAD, MAHER M

ART UNIT	PAPER NUMBER
1644	14

DATE MAILED: 09/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/647,544	LUNDGREN-AKERLUND, EVY	
	Examiner	Art Unit	
	Maher M. Haddad	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/28/01, 1/7/02, 6/24/02, 7/14/03* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21,23-31,33-46,48-86,88-99,101-108 and 110-137* is/are pending in the application.

MH 9/30/03 4a) Of the above claim(s) *2-21,26-31,33-46,48-86,88-99,101-108 and ~~110-137~~* (MH) 110-125, 127-137 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,23-25,76 and 126* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☒ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

DETAILED ACTION

1. Claims 1-21, 23-31, 33-46, 48-86, 88-99, 101-108, and 110-137 are pending.

2. Applicant's election with traverse of Group I, claims 1, 22-25, 76 and 126 (now claims 1, 23-25, 76, and 126) drawn to recombinant or isolated collagen binding integrin subunit α10 comprising the amino acids of SEQ ID NO:2 and the amino acids sequence from about amino acids No. 140 to about amino acid No. 137 of SEQ ID NO:2 filed on 7/14/03, is acknowledged.

Applicant's traversal is on the grounds that the restriction practice under 35 U.S.C 121 and its associated rules, do not apply see MPEP 1895.01. Applicant argues that unity of invention is fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. Applicant asserts no reasoning or explanation was provided in the Office Action as to how the prior art applies to the original claimed invention beyond its application to Group III, or why the claims have been restricted. Applicant submits that the Office has not set forth an explanation of how a search of the claimed invention would be burdensome. Applicant argues that Hillier et al merely recite a sequence fragment but does not teach the biological activity of the disclosed sequence. Applicant submits that all of the 137 claims of the present invention, in all 123 Groups, form one single invention concept and share a technical relationship, that of the integrin subunit α10 and the special technical feature exists at least with all of the claims. Regarding the species Applicant argues that distinctness of the fragments of the a10 subunit relative to the invention that is all are part of the α10 subunit and there would be no undue burden to search all the fragments as the entire α10 sequence has already been searched.

This is not found persuasive because as stated in the previous Office Action the inventions listed as Groups I-CXXIII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The invention of Group III was found to have no special technical feature that defined the contribution over the prior art of Hillier *et al* (GenBank Accession No. N72734, 1996) (see entire document and the sequence alignment in particular). Hillier et al teach a 447 nucleotide fragment of claimed SEQ ID NO:1 at positions (NA 3025-3295), a pT7T3D vector and a DH10B host cell. Since Applicant's inventions do not contribute a special technical feature when viewed over the prior art they do not have a single general inventive concept and so lack unity of invention. Therefore, the instant invention lacks Unity of Invention and restriction was set forth as it applies to U.S. practice. Furthermore, the Restriction Requirement enunciated in the previous Office Action meets this criterion and therefore establishes that serious burden is placed on the examiner by the examination Groups. The Inventions are distinct for reasons elaborated in the previous Office Action.

The requirement is still deemed proper and is therefore made FINAL.

mH 9/30/03

3. Claims 2-21, 26-31, 33-46, 48-86, 88-99, 101-108, and 110-125, 127-137 are withdrawn from further consideration by the Examiner, 37 C.F.R. § 1.142(b) as being drawn to nonelected inventions.

4. Claims 1, 23-25, 76 and 126 are under examination as they read on an recombinant or isolated collagen binding integrin subunit α10 comprising the amino acids of SEQ ID NO:2 and the amino acids sequence from about amino acids No. 140 to about amino acid No. 137 of SEQ ID NO:2.

5. A copies of the certified compies of the foreign priority under 35 U.S.C 19 (a)-(d) or (f) have not been recieved in this National Stage applicantion. While the previous Office Action Summery acknowledged the recepient of the foreigen document, however, now such documents were found.

6. The specification is objected to under 37 CFR 1.821(d) for failing to provide a sequence identifier for each individual sequence. (1) Figure 2, on page 12, line 30 has described 6 peptide sequences from bovine α10 integrin subunit that each must have a sequence identifier. (2) Figure 6, page 13, lines 8-9 has described a nucleotide sequence and deduced amino acid sequence of the human a10 integrin subunit that each must have a sequence identifier. (3) Figure 15a-15f on page 13, lines 29-30 has described a partial genomic nucleotide sequence of the human integrin subunit α10 that must have a sequence identifier, (4) Page 6, lines 4 and 36 has described two sequences, which must have a sequence identifier (5) Page 15, lines 4, 7, 8, 14 and 16 has described consensus sequences, which must have a sequence identifier. Correction is required.

7. The amendment filed 1/07/02 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

The second supplemental preliminary amendment filed on 6-19-02 to the paragraph beginning at page 19, lines 23 to provide a sequence identifier for GAY AAY ACI GCI CAR AC SEQ ID NO: 9 represents a departure from the specification and the claims as originally filed. Applicant's amended paper copy of sequence listing reflecting changes, filed 12/28/2001 introduces a new matter. The amended paper copy of sequence listing discloses that SEQ ID NO:9 is GAY AAY ACN GCN CAR AC, wherein N = inosine. Similarly, SEQ ID NO: 11 introduces the same new matter into the disclosure. However, the specification and the claims as originally filed have no support for the newly recited N, wherein N=inosine.

Applicant is required to cancel the new matter in the response to this Office action.

8. The application claims benefit to international application No. PCT/SE99/0054, filed on 3/31/1999, Sweeden 9801164-6 and Sweden 9900319.6. An application in which the benefits an earlier-filed international application must be included in the first sentence of the specification.

9. Claims 2, 24-25 and 76 are objected to for the following informality: (1) the "homoloques" recited in claim 1, line 3 is misspelled, correction is required and (2) claims 24 and 25 recited "amino acid **N**o." and "amino acid **n**o.". Consistency is required.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 1, 24-25, 76 and 126 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claim 1 is indefinite in the citation of "same biological activity". It is unclear what biological activities are claimed and the metes and bounds of such biological activity is undefined.

b. Claims 24-25 are indefinite for reciting "from about amino acid No." in lines 2-3. It is unclear how many amino acids constitute "about". One of skill in the art would not know if applicant meant with "about", is it exactly the recited amino acids, or 4 amino acids less, as many as 11 amino acids less, or even more.

c. It is improper to recite "fragment of said integrin" in claim 76, line 3. An article such as "a" should be inserted in front of said "fragment of said integrin".

12. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

13. Claims 1, 23-25, 76 and 126 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification disclosure does not enable one skilled in the art to practice the invention without an undue amount of experimentation.

Beside the collagen binding integrin subunit α10 comprising that amino acid of SEQ ID NO:2 or fragment of SEQ ID NO:10, wherein fragment is SEQ ID NO:7, aa 952-986 of SEQ ID NO:2, or aa 140-337 of SEQ ID NO:2, the specification does not provide a sufficient enabling description of the claimed invention. A person of skill in the art is not enabled to make and use any "homologues", "fragments", "heterodimer" of any α10 subunit as recited in the claims. A person of skill in the art would not know which sequences are essential, which sequences are non-essential, and what particular sequence lengths identify essential sequences. There is insufficient guidance based on in vitro characterization assays to direct a person of skill in the art to select particular sequences as essential for in vivo characterization of their therapeutic potential. A person of skill in the art could not predict which particular amino acid sequences of SEQ ID NO: 2 are essential and could be used in a method of inhibiting adhesion. It is not clear that the skilled artisan could predict the efficacy of the breadth to the "vaccine" comprising any "subunit α10" or a homologue or fragment of the subunit α10, wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-doman and the spliced domain", encompassed by the claims. The term "comprises" in claims 1 and 76 means that a peptide may include additional unrecited amino acid residues on either or both of the N- or C- termini of given fragment.

It has been well known to those skilled in the art at the time the invention was made that minor structural differences among structurally related compounds or compositions can result in substantially different biological activities. Applicant has not enabled structurally related and unrelated compounds comprising "homologues" which would be expected to have difference in their activities. There is insufficient direction or objective evidence as to how to make and to how to use any peptide, which are markers for or target in transplantation of cartilage or chondrocytes for the number of possibilities associated with the myriad of direct and indirect effects associated with various adhesion pathways or molecules and, in turn, as to whether such a desired effect can be achieved or predicted, as encompassed by the claims. Reasonable correlation must exist between the scope of the claims and scope of enablement set forth. Without sufficient guidance, the changes which can be made in the structure of any " peptide" or "α10 subunit" and still provide or maintain sufficient or the claimed activity is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue.

Claim 23 recites the integrin subunit α10, however, the specification provided only SEQ ID NO:2 as the α10 subunit. Therefore, it is unclear how many integrin subunit α10, and what species integrin subunit α10 are claimed.

Claim 126 recites the integrin subunit α10 is a marker or target in translation of cartilage or chondrocytes. However, Lehnert et al in Cytogenet Cell Genet. 87(3-4):238-244, 1999 teaches that human α10 transcripts were not restricted to chondrocytes but, instead, were widely expressed in a panel of 24 tissue types, where the highest expression was found in muscle and heart. Therefore, it is unclear how SEQ ID NO:2 or fragment thereof would be use as a marker or target in transplantation of cartilage or chondrocytes.

The specification on page 7 discloses only SEQ ID NO:7, aa 952-986 and aa 140-337 of SEQ ID NO:2 fragments. The specification does not provide sufficient guidance for peptides form the cytoplasmic domain the I-domain and the spliced domain. The scope of the claims is not commensurate with the enablement provided by the disclosure with regard to the extremely large number of fragments broadly encompassed by the claims and the claims broadly encompass a significant number of inoperative species. Since the amino acid sequence of a protein determines its structural and functional properties, predictability of which changes can be tolerated in a peptide's amino acid sequence and still retain similar biological activity requires a knowledge of and guidance with regard to which amino acids in the protein's sequence, if any, are tolerant of modification and which are conserved (i.e. expectedly in tolerant to modification), and detailed knowledge of the ways in which the protein's structure relates to tits function. However, the problem of predicting protein structure from mere sequence data of a single protein and in turn utilizing predicted structural determinations to ascertain function aspects of the protein and finally what changes can be tolerated with respect thereto is extremely complex and well outside the realm of routine experimentation.

Also, at issue is whether or not the claimed composition would function as vaccine. The specification on page 10, lines 1-21 discloses the use of pharmaceutical composition in stimulating, inhibiting or blocking the formation of cartilage, bone or blood vessels. Further, the specification discloses the use of the composition in preventing adhesion between tendon/ligaments and the surrounding tissue after infection, inflammation and after surgical intervention. However, in view of the absence of a specific and detailed description in Applicant's specification of how to effectively use the vaccine as claimed, and absence of working examples providing evidence which is reasonably predictive that the claimed vaccine is effective for in vivo use, and the lack of predictability in the art at the time the invention was made, an undue amount of experimentation would be required to practice the claimed vaccine with a reasonable expectation of success.

Reasonable correlation must exist between the scope of the claims and scope of the enablement set forth. In view on the quantity of experimentation necessary the limited working examples, the nature of the invention, the state of the prior art, the unpredictability of the art and the breadth of the claims, it would take undue trials and errors to practice the claimed invention.

14. Claims 1, 23-25, 76 and 126 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicant is in possession of a recombinant or isolated collagen binding integrin subunit $\alpha 10$ comprising that amino acid of SEQ ID NO:2 or fragment of SEQ ID NO:10, wherein fragment is SEQ ID NO:7, aa 952-986 of SEQ ID NO:2, or aa 140-337 of SEQ ID NO:2.

Applicant is not in possession of any recombinant or isolated collagen binding integrin subunit α10 comprising essentially the amino acid sequence shown in SEQ ID NO:2, or homologues or Fragments thereof having essentially the same biological activity in claim 1; any fragment of the integrin subunit a10, wherein the fragment is the amino acid sequence from about amino acid No. 952 to about amino acid No. 986 of SEQ ID NO: 2 in claim 24; any fragment of the integrin subunit a10, wherein the fragment is the amino acid sequence from about amino acid No. 140 to about amino acid No. 337 of SEQ ID NO: 2 in claim 25; vaccine comprising the subunit 10, or a homologue or fragment of said integrin or subunit α10, wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain in claim 76 or the integrin subunit a10 of SEQ ID NO:2 , wherein the integrin subunit α10 is a marker or target in transplantation of cartilage or chondrocytes in claim 126.

Applicant has disclosed only amino acid of SEQ ID NO: 1 and SEQ ID NO:7, aa 952-986 and aa 140-337 of SEQ ID NO:2 ; therefore, the skilled artisan cannot envision all the contemplated amino acid sequence possibilities recited in the instant claims. Consequently, conception cannot be achieved until a representative description of the structural and functional properties of the claimed invention has occurred, regardless of the complexity or simplicity of the method. Adequate written description requires more than a mere statement that it is part of the invention. See *Fiers v. Revel*, 25 USPQ2d 1601, 1606 (CAFC1993). The Guidelines for the Examination of Patent Application Under the 35 U.S.C.112, ¶ 1"Written Description" Requirement make clear that the written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species disclosure of relevant, identifying characteristics, i.e., structure or other physical and or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show the applicant was in possession of the genus (Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 20001, see especially page 1106 3rd column).

Vas-Cath Inc. v. Mahurkar, 19 USPQ2d 1111, makes clear that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the written description inquiry, whatever is now claimed." (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See Vas-Cath at page 1116.). Consequently, Applicant was not in possession of the instant claimed invention. See University of California v. Eli Lilly and Co. 43 USPQ2d 1398.

Applicant is directed to the Revised Interim Guidelines for the Examination of Patent Applications Under the 35 U.S.C. 112, ¶ 1 "Written Description" Requirement, Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001.

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

16. Claims 1, 23-24 and 126 are rejected under 35 U.S.C. 102(a) as being anticipated by Camper et al (J. Biol. Chem. 273(7):20383-20389, August 1998).

Camper et al teach collagen binding integrin subunit α10 comprising claimed SEQ ID NO:2 (see figure 4 in particular). Camper et al further teaches a fragment of the integrin subunit α10, wherein the fragment is a peptide comprising the amino acid sequence SEQ ID NO:7 (see table II page 20386 in particular). Camper et al., further teach I-domain (199 amino acids), transmembrane domain (25 amino acids), short cytoplasmic domain (22 amino acids) fragments (see abstract in particular). Finally, Camper et al teaches human chondrocytes express a nove, collagen type II-bindign integrin in the β1 family (see discussion page 20388, 1st paragraph in particular).

Claim 24 is included because "about amino acid No." recited in the claim, opens the claim to read on the referenced I-domain depicted in Figure 4 (box) aa 162-359 of SEQ ID NO:2.

The reference teachings anticipate the claimed invention.

17. Claims 1 and 126 are rejected under 35 U.S.C. 102(b) as being anticipated by US. Patent No. 5,686,059.

The `059 patent teaches a nine amino acid sequence (DIVIVLDGS) which bind collagen (see referenced SEQ ID NO: 34, and col., 3, line 31 through col., 4 line 13 in particular) comprising a fragment of claimed SEQ ID NO:2 at positions (aa 168-175, VIVLDGS), wherein the fragment is part the I-domain.

While the prior art teachings may be silent as to the "a marker or target in transplantation of cartilage or chondrocytes" per se; the product the reference is the same as the claimed product. Therefore "a marker or target in transplantation of cartilage or chondrocytes" is considered inherent properties.

The term "comprising" in claim 1 would open up the claim to include the 9 amino acid sequence.

The reference teachings anticipate the claimed invention.

18. Claims 1 and 126 are rejected under 35 U.S.C. 102(b) as being anticipated by Takada et al (IDS Ref No. 6).

Takada et al teach a human α3 subunit, an integrin receptor for collagen i.e. a homologue of subunit α10 (see abstract in particular). Takada et al further teach a nine amino acid sequence of metal binding domains general structure (DX(D/N)X(D/N)GXXD)) (see abstract in particular) fragment. SEQ ID NO:2 has three fragments of the metal binding structure at positions (aa 490-502, DTDRDGTTD, aa 558-566, DLNQDGFAD and aa 619-628, DLDGDDLVD). These metal binding domains have the same biological function in referenced α3 and claimed SEQ ID NO: 2.

While the prior art teachings may be silent as to the "a marker or target in transplantation of cartilage or chondrocytes" per se; the product the reference is the same as the claimed product. Therefore "a marker or target in transplantation of cartilage or chondrocytes" is considered inherent properties.

The reference teachings anticipate the claimed invention.

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

20. Claims 76 is rejected under 35 U.S.C. 103(a) as being unpatentable over Camper *et al*, Takada *et al* or 5,686,059 in view of U.S. Patent No. 5,853,987.

The teachings of Camper *et al* and Takada *et al* references and `059 have been discussed, supra.

The claimed invention differs from the reference teachings only by the recitation of a composition in claim 76.

The `987 patent teaches peptides that are ideal targets for use as vaccines or immunoreagents for the treatment of various borrelia-related diseases, The `987 patent teaches the advantages can be realized through the preparation of synthetic peptides that include epitopic/immunogenic core sequences. These epitopic core sequences may be identified as hydrophilic and/or mobile regions of the polypeptides or those that include a T cell motif. It is known in the art that such regions represent those that are most likely to promote B cell or T cell stimulation, and, hence, elicit specific antibody production (see col., 42-44, under Vaccines and col., 48, lines 17-32 in particular).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to formulate the α10 subunit, fragments and/or homologue taught by the `059, Camper *et al* and Takada *et al* in a composition as taught by the `987 patent.

One of ordinary skill in the art at the time the invention was made would have been motivated to do so for treating various diseases as taught by the `989 patent.

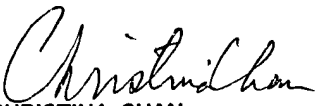
From the combined teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

21. No claim is allowed.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maher Haddad, whose telephone number is (703) 306-3472. The examiner can normally be reached Monday to Friday from 8:00 to 4:30. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached at (703) 308-3973. Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center 1600 receptionist whose telephone number is (703) 308-0196.

Papers related to this application may be submitted to Technology Center 1600 by facsimile transmission. Papers should be faxed to Technology Center 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CM1 Fax Center telephone number is (703) 872-9306.

Maher Haddad, Ph.D.
Patent Examiner
Technology Center 1600
September 22, 2003



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